National Defense Center for Energy and Environment

Harmonizing Title V, PSD, and Air Emissions Inventories with EPA Mandatory Reporting for Greenhouse Gases at Fort Benning

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DoD Executive Agent

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Presentation Outline

- Fort Benning air emissions overview
- Historic perspective of inventories preparation
- Why harmonize with Environmental Protection Agency (EPA) greenhouse gas (GHG) reporting rule?
- The emissions harmonizing process
- Example combustion unit
- Conclusions

Air Emissions Overview

- Title V Operating Permit
  - New Source Performance Standards (NSPS)
  - Hazardous Air Pollutant (HAP) major source
- Major source under Prevention of Significant Deterioration (PSD)
- EPA GHG mandatory reporting rule
- Executive Order 13514
- Georgia Environmental Protection Division (EPD) emissions inventory (fee determination)
- U.S. Army inventory requirements

Emissions Inventories Recent History

Inventory	2006	2007	2008	2009	2010 +
Criteria & HAP	Enviance	Contractor (excel)	Contractor (excel)	Contractor (excel)	Enviance
Title V Emission Caps	Fort Benning Staff (excel)	Fort Benning Staff (excel)	Fort Benning Staff (excel)	Fort Benning Staff (excel)	Enviance
PSD Significance Thresholds	Fort Benning Staff (excel)	Fort Benning Staff (excel)	Fort Benning Staff (excel)	Fort Benning Staff (excel)	Enviance
Greenhouse Gas		Enviance TCR Protocol			Enviance EPA Protocol
EO13514 Scope 1 GHG			Enviance CEQ/EPA Protocol	Enviance CEQ/EPA Protocol	Enviance CEQ/EPA Protocol
EO13514 Scope 2 GHG			Enviance CEQ Protocol	Enviance CEQ Protocol	Enviance CEQ Protocol

Combustion Units Emissions Methods

Inventory	Emission Factor (EF) Source	EF Units of Measure (UOM)	Raw Data Source and UOM	Reporting or Emissions Limit UOM
Criteria & HAP	AP-42	Gas: lb/mm scf Oil: lb/ 1000 gal	Gas: Meter (cscf) Oil: Used (gal) Monthly	Criteria: TPY HAPs: lb/year & TPY
Title V Emission Caps	AP-42	Gas: lb/mm scf Oil: lb/ 1000 gal	Gas: Meter (cscf) Oil: Used (gal) Monthly	Criteria: TPY, Rolling 12 Month Sum
PSD Significance Thresholds	Georgia EPD	Lb/mm Btu, Btu/hr, Operating Hours	Gas: Meter (cscf) Oil: Used (gal) Monthly	TPY via Hr / Year
Greenhouse Gas	40 CFR Part 98 Subpart C	Enviance TCR Protocol	Gas: Meter (cscf) Oil: Used (gal) Monthly	Metric Tons / Year CO_2e

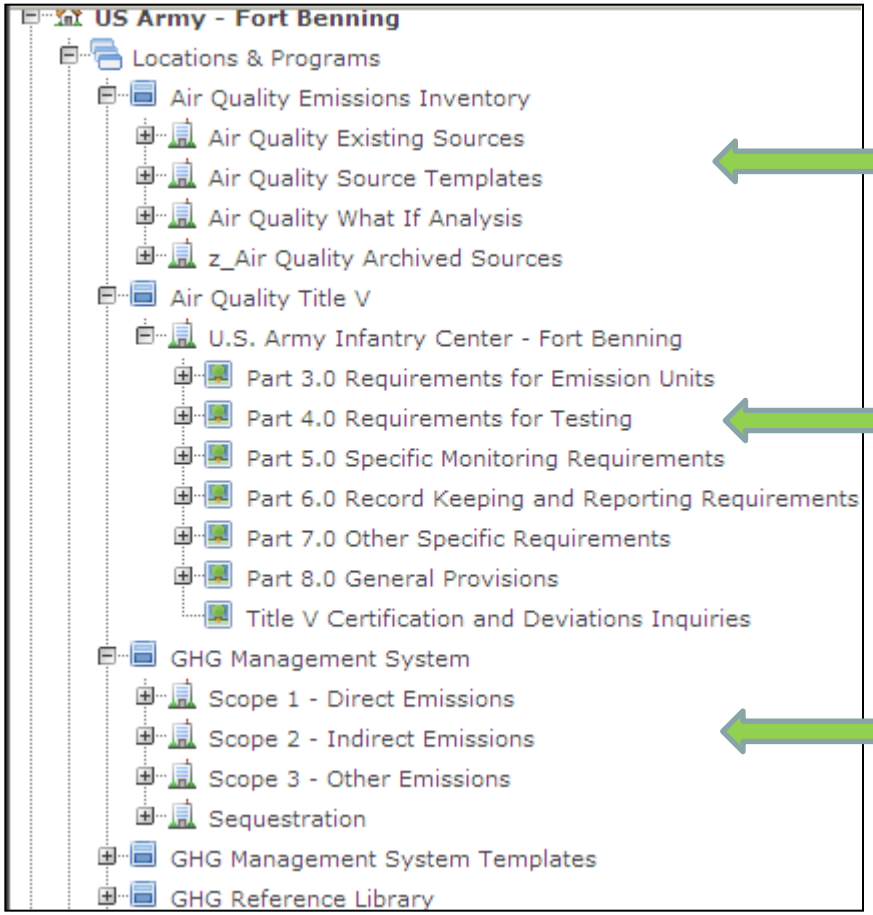
Why Harmonize Emissions Calculations?

- Long term program continuity
  - Multiple spreadsheets on various computers
  - Staff turnover
  - No “institutional memory” of methods
- Consistency
  - Single data source (meter readings, e.g.) could drive 5 calculation sets
- Efficiency
  - Data collection and entry simplified
- Transparency
  - Key sustainability/stakeholder component

The Emissions Harmonizing Process

- Agreement with Georgia EPA
  - PSD significance threshold
  - Criteria inventory
  - Title V limits
- Use raw data from its source
  - Meter readings (Hundreds scf) monthly
  - As opposed to pre-processing in excel spreadsheets
- Map single data entry to all dependent calculations
- Preserve previous methods
- One-time report configuration allows ongoing output

File Organization in EMIS

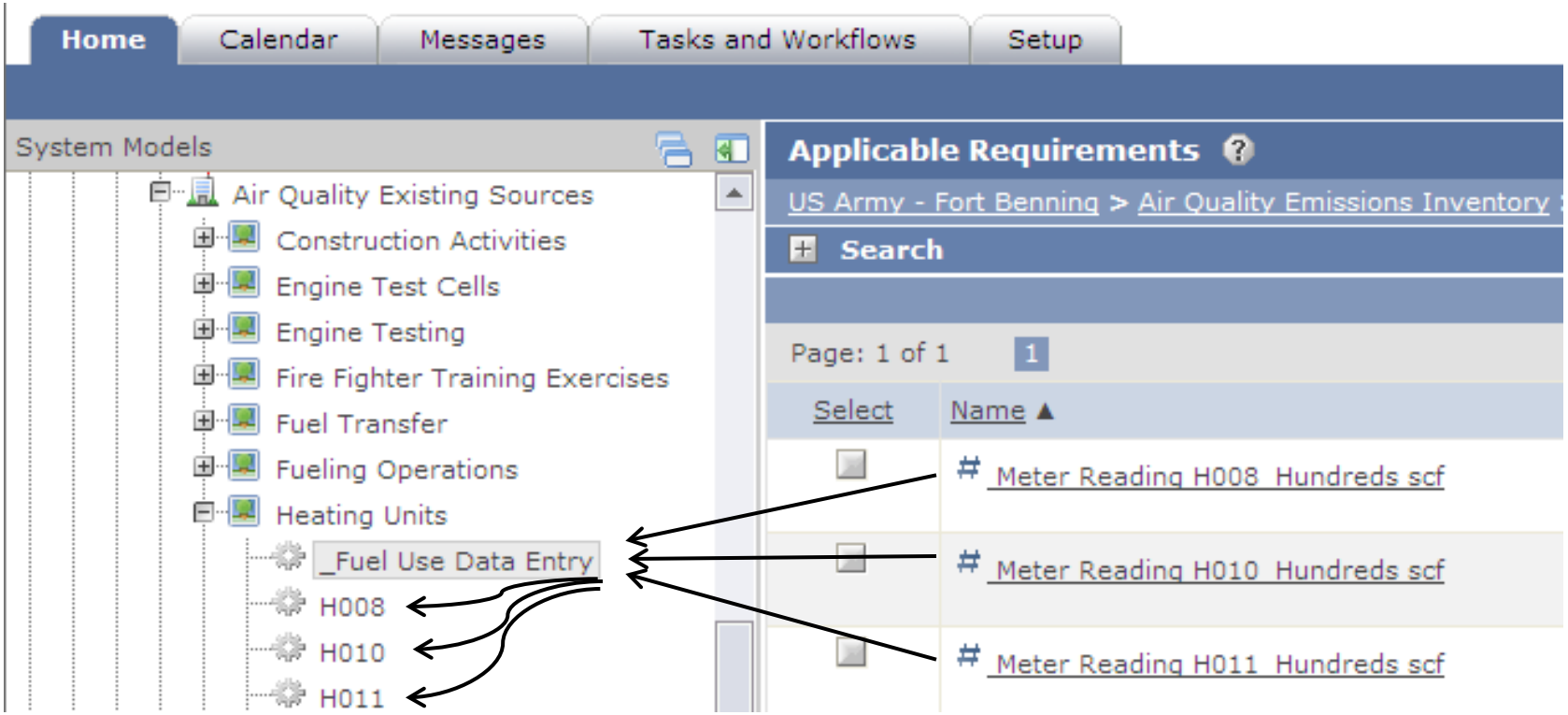


Criteria, HAPs, and PSD calculations

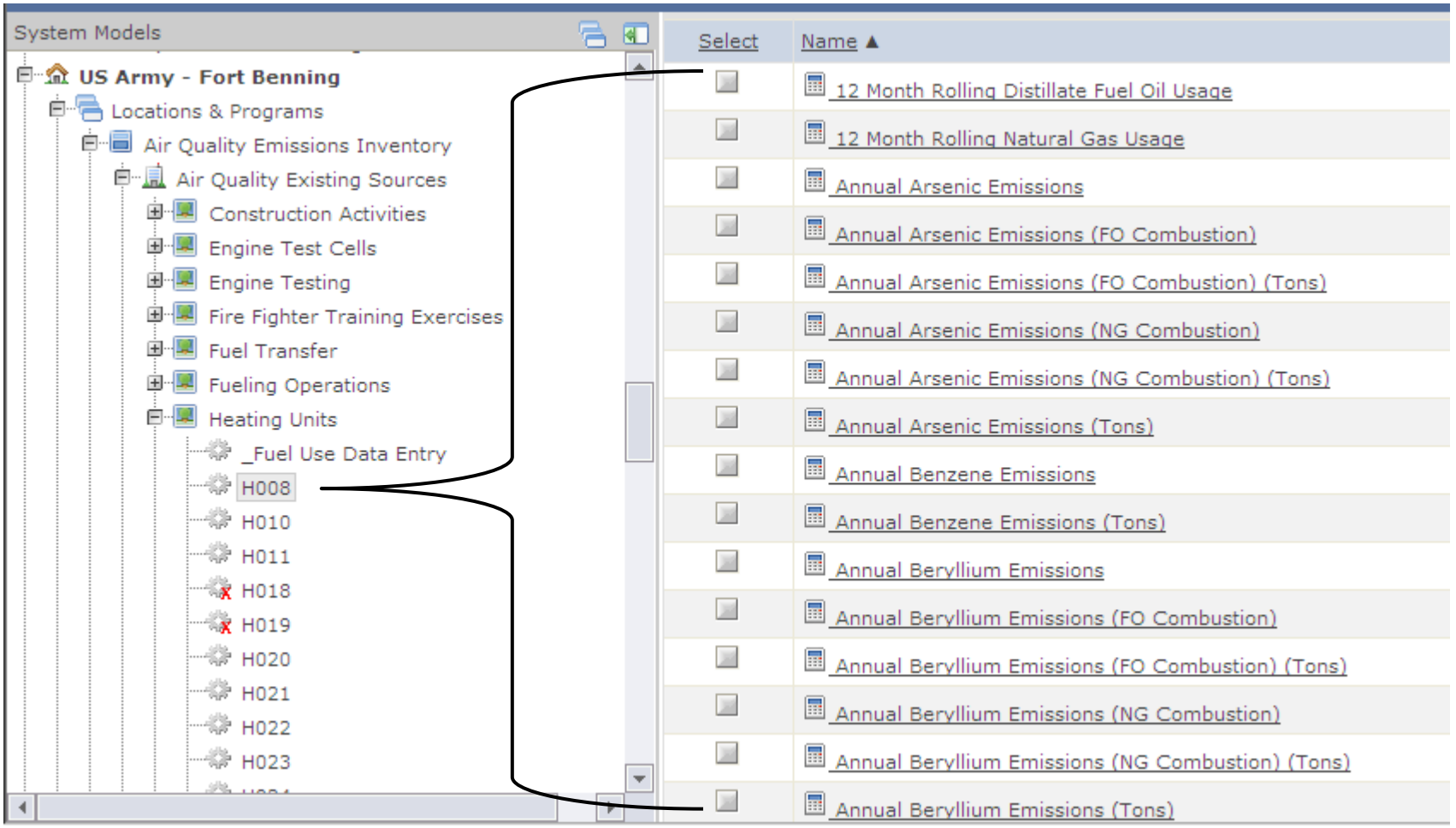
Title V Permit Conditions (Including limit calculations)

GHG calculations

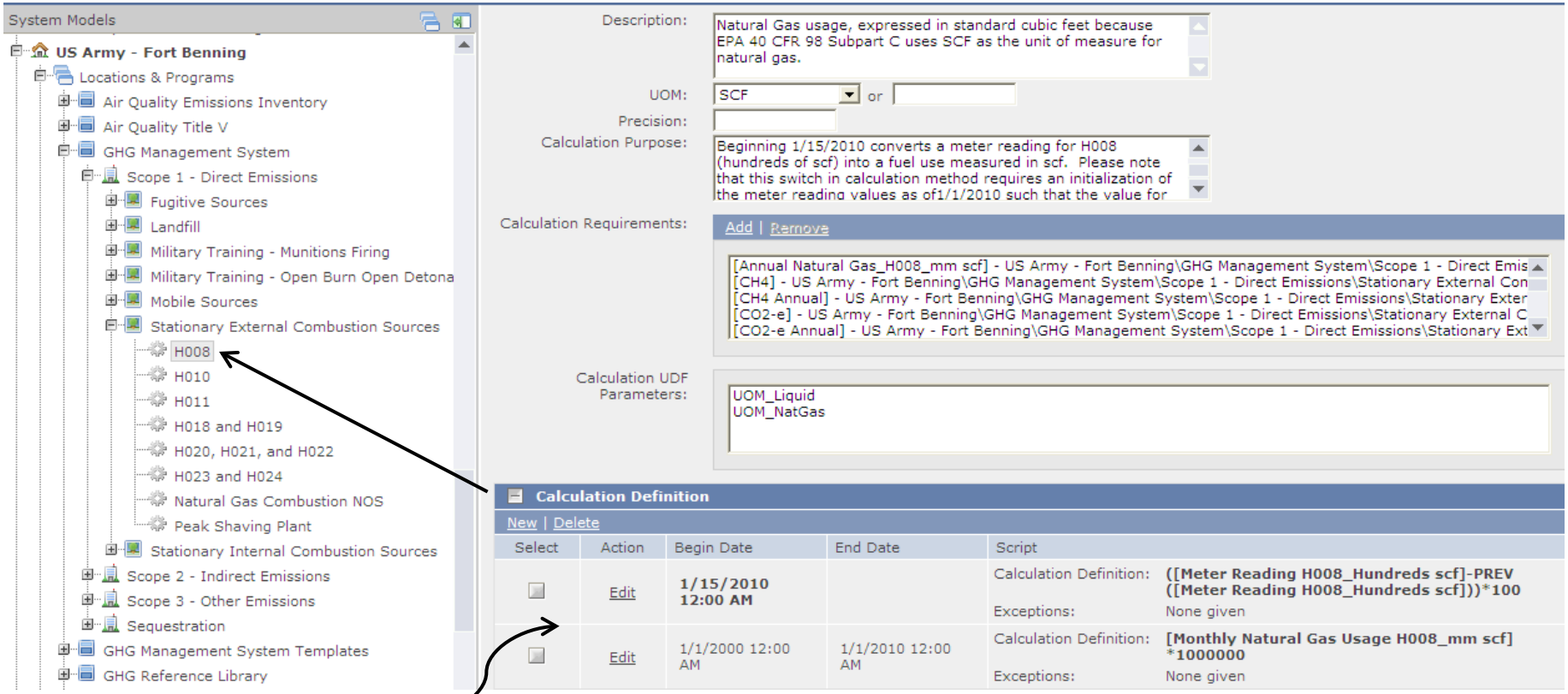
Use raw data from its source



Map raw data to drive emissions calculations



Preserve Previous Methods



Historical calculation capability allows former methods to be used for legacy data

Report on Ongoing Basis

1	**U. S. Army Infantry Center - Fort Benning**				
2	**Fort Benning, Georgia 31905**				
3	**Permit Numbers 9711-215-0021-V-02-0 and 9711-215-0021-V-02-1**				
4	**Facility AIRS Number: 04-13-215-0021**				
5	**Attachment 1 - Semiannual Compliance Report**				
6	Report Period:				
7					
8	**Permit and Condition Number**	**Month Ending**	**Permit Limit**	**Actual 12-Consecutive Month Sum**	**Unit of Measure**
9	3.2.3	07/31/2010	379.8	1.211	millon cubic feet
10	3.2.3	08/31/2010	379.8	1.211	millon cubic feet
11	3.2.3	09/30/2010	379.8	1.211	millon cubic feet
12	3.2.3	10/31/2010	379.8	1.211	millon cubic feet
13	3.2.3	11/30/2010	379.8	1.211	millon cubic feet
14	3.2.3	12/31/2010	379.8	1.294	millon cubic feet
15	3.2.4	07/31/2010	630,800	195,469	gallons
16	3.2.4	08/31/2010	630,800	195,469	gallons
17	3.2.4	09/30/2010	630,800	195,469	gallons
18	3.2.4	10/31/2010	630,800	195,469	gallons
19	3.2.4	11/30/2010	630,800	195,469	gallons
20	3.2.4	12/31/2010	630,800	266,063	gallons
21	3.2.5	07/31/2010	1,000,000	0	gallons
22	3.2.5	08/31/2010	1,000,000	0	gallons
23	3.2.5	09/30/2010	1,000,000	0	gallons
24	3.2.5	10/31/2010	1,000,000	0	gallons
25	3.2.5	11/30/2010	1,000,000	0	gallons
26	3.2.5	12/31/2010	1,000,000	0	gallons

Report Page 1 | Attachment 1 | Sheet3 | Semi Annual Compliance | Compliance Data for Title

Direct output from Enviance EMIS

Example of limit calculations for Title V Compliance Semi Annual Report

Conclusions

- Actual cost savings realized
  - FY11 funding released by Air Program ($50K), not requested for FY12
  - FY11 funding planned for PSD analysis being reallocated
- Simplified data entry
- Standard calculation methods
- Consistent calculations basis
- Program “memory” built into system
  - Will greatly assist future air program managers
  - Eliminates multiple excel spreadsheets
- Produces all required regulatory reports

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Office of the Assistant Secretary of the Army Installations, Energy and Environment

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